

Ser. No. 09/759,766
Attorney Docket No. 2359-00

In the claims:

1. (Currently Amended) An apparatus for augmenting near vision accommodation by contraction of the ciliary muscles of the eye by reinforcement of at least one set of natural zonular fibers, the apparatus comprising:

at least one bridge ~~a means~~ for transmitting a contraction force from the ciliary muscles to the at least one set of natural zonular fibers;

said at least one bridge configured to be affixed in and around the at least one set of natural zonular fibers of the eye;

said at least one bridge for augmenting the contraction force and for constricting the natural crystalline lens by the augmented contraction force from the transmission of the contraction force from the ciliary muscles to the at least one set of natural zonular fibers and the at least one bridge.

2. (Previously Presented) The apparatus of claim 1 wherein said at least one bridge comprises a symmetric distribution of said at least one bridge.

3. (Withdrawn) The apparatus of claim 1 wherein said at least one bridge comprises a ring.

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4. (Previously Presented) The apparatus of claim 1 wherein said at least one bridge comprises a biocompatible material.
5. (Previously Presented) The apparatus of claim 1 wherein said at least one bridge comprises a synthetic muscle.
6. (Previously Presented) The apparatus of claim 5 wherein said synthetic muscle comprises a member from the group consisting of polymer hydrogels, polymer gels, polymethylmethacrylate (PMMA), polypropylene, silicone polymers, polysilicones, light curable polymeric melts, electroactive ionic polymers and plastic.
7. (Withdrawn) The apparatus of claim 5 wherein said synthetic muscle comprises an artificial muscle.
8. (Withdrawn) The apparatus of claim 7 wherein said artificial muscle comprises a shape memory alloy (SMA).
9. (Withdrawn) The apparatus of claim 7 wherein said artificial muscle comprises a shape memory polymers (SMP) artificial muscle.
10. (Previously Presented) The apparatus of claim 5 wherein said synthetic muscle comprises an active material.

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11. (Withdrawn) The apparatus of claim 10 wherein said active material comprises a member from the group consisting of inflatable mini-balloons, deployable structural mini-bridges, electromagnetically deployable solenoidal structures, piezocerams, piezopolymers, electroactive polymers electrostrictive polymers, light curable polymers, magnetorheological materials and electrorheological materials.

12. (Previously Presented) A method of correcting presbyopia and hyperopia on demand, the method comprising the steps of:

- a. affixing at least one bridge in and around at least one set of natural zonular fibers of the eye;
- b. transmitting a contraction force from the ciliary muscles to the at least one set of natural zonular fibers;
- c. augmenting the contraction force by the at least one bridge affixed to the at least one set of natural zonular fibers; and
- d. constricting the natural crystalline lens by the augmented contraction force from the transmission of the contraction force from the ciliary muscles to the at least one set of natural zonular fibers and the at least one bridge.

13. (Cancelled)

14. (Cancelled)

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15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)